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FILE 'HOME' ENTERED AT 14:34:33 ON 27 SEP 2002

=> FIL MEDLINE
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

FILE 'MEDLINE' ENTERED AT 14:34:41 ON 27 SEP 2002

 FILE LAST UPDATED: 26 SEP 2002 (20020926/UP). FILE COVERS 1958 TO DATE.

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 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2002 vocabulary. Enter HELP THESAURUS for details.

 THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE
 SUBSTANCE IDENTIFICATION.

=> s HCV and E2 and dna and antibody
'E2' NOT FOUND
The E# entered is not currently defined.

=> s HCV and "E2" and dna and antibody
         11988 HCV
            27 HCVS
         11992 HCV
                 (HCV OR HCVS)
         31490 "E2"
        661737 DNA
         11362 DNAS
        663115 DNA
                 (DNA OR DNAS)
        398512 ANTIBODY
        412957 ANTIBODIES
        614922 ANTIBODY
                 (ANTIBODY OR ANTIBODIES)
L1          79 HCV AND "E2" AND DNA AND ANTIBODY

=> display l1
ENTER ANSWER NUMBER OR RANGE (1):20-70
ENTER DISPLAY FORMAT (BIB):bib

L1   ANSWER 20 OF 79     MEDLINE
AN   2001206048     MEDLINE
DN   21142430   PubMed ID: 11230750
TI   Mimotopes of the hepatitis C virus hypervariable region 1, but not the
     natural sequences, induce cross-reactive antibody response by
     genetic immunization.
AU   Zucchelli S; Roccasecca R; Meola A; Ercole B B; Tafi R; Dubuisson J;
     Galfre G; Cortese R; Nicosia A
CS   Istituto di Ricerche di Biologia Molecolare P. Angeletti, Pomezia, Rome,
     Italy; and CNRS-UMR8526, IBL/Institute Pasteur De Lille, Lille, France.
SO   HEPATOLOGY, (2001 Mar) 33 (3) 692-703.
     Journal code: 8302946. ISSN: 0270-9139.
CY   United States
DT   Journal; Article; (JOURNAL ARTICLE)
LA   English
FS   Priority Journals
EM   200104
ED   Entered STN: 20010417
     Last Updated on STN: 20010417
     Entered Medline: 20010412
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L1 ANSWER 21 OF 79 MEDLINE
AN 2001204258 MEDLINE
DN 21093841 PubMed ID: 11159532
TI V(H)1-69 gene is preferentially used by hepatitis C virus-associated B cell lymphomas and by normal B cells responding to the **E2** viral antigen.
AU Chan C H; Hadlock K G; Foung S K; Levy S
CS Department of Medicine, Division of Oncology and Pathology, Stanford University Medical Center, Stanford, CA, USA.
NC CA34233 (NCI)
DA06596 (NIDA)
HL33811 (NHLBI)
SO BLOOD, (2001 Feb 15) 97 (4) 1023-6.
Journal code: 7603509. ISSN: 0006-4971.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200104
ED Entered STN: 20010417
Last Updated on STN: 20010417
Entered Medline: 20010412

L1 ANSWER 22 OF 79 MEDLINE
AN 2001172594 MEDLINE
DN 21120600 PubMed ID: 11272796
TI The epidemiology of TT virus (TTV) infection in a hepatitis C and B virus hyperendemic area of southern Taiwan.
AU Dai C Y; Yu M L; Chuang W L; Lu S N; Wang J H; Huang J F; Hou C; Chen S C; Lin Z Y; Hsieh M Y; Wang L Y; Tsai J F; Chang W Y
CS Hepatobiliary Division, Department of Internal Medicine, Kaohsiung Medical University, Taiwan.
SO KAOHSIUNG JOURNAL OF MEDICAL SCIENCES, (2000 Oct) 16 (10) 500-9.
Journal code: 100960562. ISSN: 1607-551X.
CY China (Republic: 1949-)
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Dental Journals; Priority Journals
EM 200103
ED Entered STN: 20010404
Last Updated on STN: 20010404
Entered Medline: 20010329

L1 ANSWER 23 OF 79 MEDLINE
AN 2001154265 MEDLINE
DN 20579439 PubMed ID: 11139197
TI Diversity of hepatitis C virus quasispecies evaluated by denaturing gradient gel electrophoresis.
AU Harris K A; Teo C G
CS Hepatitis and Retrovirus Laboratory, Central Public Health Laboratory, Public Health Laboratory Service, London NW9 5HT, United Kingdom.
SO CLINICAL AND DIAGNOSTIC LABORATORY IMMUNOLOGY, (2001 Jan) 8 (1) 62-73.
Journal code: 9421292. ISSN: 1071-412X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AF282631; GENBANK-AF282632; GENBANK-AF282633; GENBANK-AF282634; GENBANK-AF282635; GENBANK-AF282636; GENBANK-AF282637; GENBANK-AF282638; GENBANK-AF282639; GENBANK-AF282640; GENBANK-AF282641; GENBANK-AF282642; GENBANK-AF282643; GENBANK-AF282644; GENBANK-AF282645; GENBANK-AF282646; GENBANK-AF282647; GENBANK-AF282648; GENBANK-AF282649; GENBANK-AF282650; GENBANK-AF282651; GENBANK-AF282652; GENBANK-AF282653; GENBANK-AF282654; GENBANK-AF282655; GENBANK-AF282656; GENBANK-AF282657; GENBANK-AF282658;

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GENBANK-AY004001; GENBANK-AY004002; GENBANK-AY004003; GENBANK-AY004004;
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GENBANK-AY004017; GENBANK-AY004018; GENBANK-AY004019; GENBANK-AY004020;
GENBANK-AY004021; GENBANK-AY004022; GENBANK-AY004023; GENBANK-AY004024;
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GENBANK-AY004033; GENBANK-AY004034; GENBANK-AY004035
EM 200103
ED Entered STN: 20010404
Last Updated on STN: 20010404
Entered Medline: 20010322

L1 ANSWER 24 OF 79 MEDLINE
AN 2001083019 MEDLINE
DN 20541958 PubMed ID: 11090158
TI Enhancing B- and T-cell immune response to a hepatitis C virus **E2** **DNA** vaccine by intramuscular electrical gene transfer.
AU Zucchelli S; Capone S; Fattori E; Folgori A; Di Marco A; Casimiro D; Simon A J; Laufer R; La Monica N; Cortese R; Nicosia A
CS Istituto di Ricerche di Biologia Molecolare P. Angeletti, 00040 Pomezia (Rome), Italy.
SO JOURNAL OF VIROLOGY, (2000 Dec) 74 (24) 11598-607.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200101
ED Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010111

L1 ANSWER 25 OF 79 MEDLINE
AN 2001049645 MEDLINE
DN 20525727 PubMed ID: 11071972
TI TT virus infection in haemodialysis patients.
AU Campo N; Brizzolara R; Sinelli N; Torre F; Russo R; Deferrari G; Picciotto A

CS Department of Internal Medicine, Gastroenterology Unit, University of Genoa, Genoa, Italy.
SO NEPHROLOGY, DIALYSIS, TRANSPLANTATION, (2000 Nov) 15 (11) 1823-6. Journal code: 8706402. ISSN: 0931-0509.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200012
ED Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001214

L1 ANSWER 26 OF 79 MEDLINE
AN 2001029206 MEDLINE
DN 20496998 PubMed ID: 11040118
TI Use of conventional or replicating nucleic acid-based vaccines and recombinant Semliki forest virus-derived particles for the induction of immune responses against hepatitis C virus core and **E2** antigens.
AU Vidalin O; Fournillier A; Renard N; Chen M; Depla E; Boucreux D; Brinster C; Baumert T; Nakano I; Fukuda Y; Liljestrom P; Trepo C; Inchauspe G
CS INSERM U271-151, Cours Albert Thomas, 69424 Lyon Cedex 03, France.
SO VIROLOGY, (2000 Oct 25) 276 (2) 259-70. Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200011
ED Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001121

L1 ANSWER 27 OF 79 MEDLINE
AN 2000427880 MEDLINE
DN 20417952 PubMed ID: 10960458
TI Vaccination of chimpanzees with plasmid **DNA** encoding the hepatitis C virus (**HCV**) envelope **E2** protein modified the infection after challenge with homologous monoclonal **HCV**.
AU Forns X; Payette P J; Ma X; Satterfield W; Eder G; Mushahwar I K; Govindarajan S; Davis H L; Emerson S U; Purcell R H; Bukh J
CS Hepatitis Viruses, Laboratory of Infectious Diseases, NIAID, National Institutes of Health, Bethesda, MD.
NC N01-A1-45180 (NCI)
N01-A1-52705
N01-CO-56000
SO HEPATOLOGY, (2000 Sep) 32 (3) 618-25. Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200009
ED Entered STN: 20000922
Last Updated on STN: 20000922
Entered Medline: 20000914

L1 ANSWER 28 OF 79 MEDLINE
AN 2000413733 MEDLINE
DN 20341727 PubMed ID: 10882577
TI **DNA** prime-canarypox boost with polycistronic hepatitis C virus (**HCV**) genes generates potent immune responses to **HCV** structural and nonstructural proteins.
AU Pancholi P; Liu Q; Tricoche N; Zhang P; Perkus M E; Prince A M

CS Laboratory of Virology, The Lindlsey F. Kimball Research Institute of the New York Blood Center, New York, NY 10021, USA.. ppanchol@nybc.org
SO JOURNAL OF INFECTIOUS DISEASES, (2000 Jul) 182 (1) 18-27.
Journal code: 0413675. ISSN: 0022-1899.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200008
ED Entered STN: 20000907
Last Updated on STN: 20000907
Entered Medline: 20000828

L1 ANSWER 29 OF 79 MEDLINE
AN 2000387891 MEDLINE
DN 20347351 PubMed ID: 10888628
TI Evaluation of hepatitis C virus glycoprotein **E2** for vaccine design: an endoplasmic reticulum-retained recombinant protein is superior to secreted recombinant protein and **DNA**-based vaccine candidates.
AU Heile J M; Fong Y L; Rosa D; Berger K; Saletti G; Campagnoli S; Bensi G; Capo S; Coates S; Crawford K; Dong C; Wininger M; Baker G; Cousens L; Chien D; Ng P; Archangel P; Grandi G; Houghton M; Abrignani S
CS IRIS Research Center, Chiron, 53100 Siena, Italy.
SO JOURNAL OF VIROLOGY, (2000 Aug) 74 (15) 6885-92.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200008
ED Entered STN: 20000818
Last Updated on STN: 20000818
Entered Medline: 20000810

L1 ANSWER 30 OF 79 MEDLINE
AN 2000180687 MEDLINE
DN 20180687 PubMed ID: 10715797
TI **DNA** vaccination of the induction of immune responses by codelivery of IL-12 expression vector with hepatitis C structural antigens.
AU Shan M; Liu K; Fang H
CS Institute of Infectious Disease, Zhejiang Medical University, Hangzhou.
SO CHUNG-HUA KAN TSANG PING TSA CHIH, (1999 Dec) 7 (4) 236-9.
Journal code: 9710009. ISSN: 1007-3418.
CY China
DT Journal; Article; (JOURNAL ARTICLE)
LA Chinese
FS Priority Journals
EM 200003
ED Entered STN: 20000330
Last Updated on STN: 20000330
Entered Medline: 20000323

L1 ANSWER 31 OF 79 MEDLINE
AN 2000148989 MEDLINE
DN 20148989 PubMed ID: 10684312
TI Enhancement of immunoglobulin G2a and cytotoxic T-lymphocyte responses by a booster immunization with recombinant hepatitis C virus **E2** protein in **E2** **DNA**-primed mice.
AU Song M K; Lee S W; Suh Y S; Lee K J; Sung Y C
CS Department of Life Science, Pohang University of Science and Technology, Pohang, Republic of Korea.
SO JOURNAL OF VIROLOGY, (2000 Mar) 74 (6) 2920-5.

Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
ED Entered STN: 20000413
Last Updated on STN: 20000413
Entered Medline: 20000403

L1 ANSWER 32 OF 79 MEDLINE
AN 2000138988 MEDLINE
DN 20138988 PubMed ID: 10674033
TI Age related prevalence of hepatitis G virus in South Africans.
AU Mphahlele M J; Aspinall S; Spooner R; Carman W F
CS Department of Virology, Medical University of Southern Africa, Pretoria, South Africa.
SO JOURNAL OF CLINICAL PATHOLOGY, (1999 Oct) 52 (10) 752-7.
Journal code: 0376601. ISSN: 0021-9746.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200002
ED Entered STN: 20000309
Last Updated on STN: 20000309
Entered Medline: 20000224

L1 ANSWER 33 OF 79 MEDLINE
AN 2000086996 MEDLINE
DN 20086996 PubMed ID: 10608749
TI Immune responses to hepatitis C virus structural and nonstructural proteins induced by plasmid **DNA** immunizations.
AU Gordon E J; Bhat R; Liu Q; Wang Y F; Tackney C; Prince A M
CS Laboratory of Virology, Lindsley F. Kimball Research Institute of the New York Blood Center, New York, New York 10021, USA.
SO JOURNAL OF INFECTIOUS DISEASES, (2000 Jan) 181 (1) 42-50.
Journal code: 0413675. ISSN: 0022-1899.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200003
ED Entered STN: 20000320
Last Updated on STN: 20000320
Entered Medline: 20000303

L1 ANSWER 34 OF 79 MEDLINE
AN 2000075244 MEDLINE
DN 20075244 PubMed ID: 10607266
TI Analysis of hepatitis G virus infection markers in blood donors and patients with hepatitis.
AU Brojer E; Grabarczyk P; Kryczka W; Kucharski W; Kubicka J; Zupanska B
CS Institute of Hematology and Blood Transfusion, Warsaw, Poland.
SO JOURNAL OF VIRAL HEPATITIS, (1999 Nov) 6 (6) 471-5.
Journal code: 9435672. ISSN: 1352-0504.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200007
ED Entered STN: 20000720
Last Updated on STN: 20001027
Entered Medline: 20000713

L1 ANSWER 35 OF 79 MEDLINE
AN 2000075226 MEDLINE
DN 20075226 PubMed ID: 10607248
TI Oral prostaglandin (PGE2) therapy for chronic viral hepatitis B and C.
AU Hyman A; Yim C; Krajden M; Read S; Basinski A S; Wanless I; Levy G; Heathcote J
CS Department of Medicine, University of Toronto, Canada.
SO JOURNAL OF VIRAL HEPATITIS, (1999 Jul) 6 (4) 329-36.
Journal code: 9435672. ISSN: 1352-0504.
CY ENGLAND: United Kingdom
DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200007
ED Entered STN: 20000720
Last Updated on STN: 20000720
Entered Medline: 20000713

L1 ANSWER 36 OF 79 MEDLINE
AN 1999370193 MEDLINE
DN 99370193 PubMed ID: 10438839
TI Expression of noncovalent hepatitis C virus envelope E1-**E2** complexes is not required for the induction of **antibodies** with neutralizing properties following **DNA** immunization.
AU Fournillier A; Depla E; Karayiannis P; Vidalin O; Maertens G; Trepo C; Inchauspe G
CS INSERM U271, Virus des hepatites, Retrovirus humains et Pathologies associees, 69424 Lyon Cedex, France.
SO JOURNAL OF VIROLOGY, (1999 Sep) 73 (9) 7497-504.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199909
ED Entered STN: 19990921
Last Updated on STN: 19990921
Entered Medline: 19990907

L1 ANSWER 37 OF 79 MEDLINE
AN 1999249296 MEDLINE
DN 99249296 PubMed ID: 10235217
TI Comparison of genetic heterogeneity of hepatitis C viral RNA in liver tissue and serum.
AU Fan X; Solomon H; Poulos J E; Neuschwander-Tetri B A; Di Bisceglie A M
CS Department of Internal Medicine, Saint Louis School of Medicine, Missouri 63104, USA.
NC DK-50178 (NIDDK)
SO AMERICAN JOURNAL OF GASTROENTEROLOGY, (1999 May) 94 (5) 1347-54.
Journal code: 0421030. ISSN: 0002-9270.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199905
ED Entered STN: 19990601
Last Updated on STN: 19990601
Entered Medline: 19990520

L1 ANSWER 38 OF 79 MEDLINE
AN 1999231951 MEDLINE
DN 99231951 PubMed ID: 10217599

TI **DNA** immunization of mice and macaques with plasmids encoding hepatitis C virus envelope **E2** protein expressed intracellularly and on the cell surface.
AU Forns X; Emerson S U; Tobin G J; Mushahwar I K; Purcell R H; Bukh J
CS Hepatitis Viruses and Molecular Hepatitis Sections, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD 20892-0740, USA.
NC AI-52705 (NIAID)
CO-56000 (NCI)
SO VACCINE, (1999 Apr 9) 17 (15-16) 1992-2002.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907
ED Entered STN: 19990715
Last Updated on STN: 19990715
Entered Medline: 19990708

L1 ANSWER 39 OF 79 MEDLINE
AN 1999174033 MEDLINE
DN 99174033 PubMed ID: 10074186
TI Long-term follow-up of chimpanzees inoculated with the first infectious clone for hepatitis C virus.
AU Major M E; Mihalik K; Fernandez J; Seidman J; Kleiner D; Kolykhalov A A; Rice C M; Feinstone S M
CS Laboratory of Hepatitis Research, Center for Biologics Evaluation and Research, Food and Drug Administration, Bethesda, Maryland 20892, USA.
NC AI40034 (NIAID)
CA57973 (NCI)
SO JOURNAL OF VIROLOGY, (1999 Apr) 73 (4) 3317-25.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199905
ED Entered STN: 19990517
Last Updated on STN: 19990517
Entered Medline: 19990506

L1 ANSWER 40 OF 79 MEDLINE
AN 1999098999 MEDLINE
DN 99098999 PubMed ID: 9882313
TI Viral persistence, **antibody** to E1 and **E2**, and hypervariable region 1 sequence stability in hepatitis C virus-inoculated chimpanzees.
AU Bassett S E; Thomas D L; Brasky K M; Lanford R E
CS Department of Virology and Immunology, Southwest Foundation for Biomedical Research, San Antonio, Texas 78227, USA.
NC AI40035 (NIAID)
SO JOURNAL OF VIROLOGY, (1999 Feb) 73 (2) 1118-26.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199902
ED Entered STN: 19990301
Last Updated on STN: 19990301
Entered Medline: 19990218

L1 ANSWER 41 OF 79 MEDLINE

AN 1999090813 MEDLINE
DN 99090813 PubMed ID: 9875635
TI Impact of hepatitis G virus co-infection on the course of hepatitis C virus infection before and after liver transplantation.
AU Bizollon T; Guichard S; Ahmed S N; Chevallier P; Ducerf C; Sepetjan M; Baulieux J; Trepo C
CS Hepatology Unit Hotel-Dieu, and INSERM U 271 Lyon, France.
SO JOURNAL OF HEPATOLOGY, (1998 Dec) 29 (6) 893-900.
Journal code: 8503886. ISSN: 0168-8278.
CY Denmark
DT (CLINICAL TRIAL)
(CONTROLLED CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199903
ED Entered STN: 19990402
Last Updated on STN: 19990402
Entered Medline: 19990323

L1 ANSWER 42 OF 79 MEDLINE
AN 1999047261 MEDLINE
DN 99047261 PubMed ID: 9831366
TI Influence of GB virus-C/hepatitis G virus infection on the long-term course of chronic hepatitis B.
AU Fattovich G; Ribero M L; Favarato S; Azzario F; Donato F; Giustina G; Fasola M; Pantalena M; Portera G; Tagger A
CS Istituto di Patologia Speciale Medica, Cattedra di Medicina Interna, University of Verona, Italy.
SO LIVER, (1998 Oct) 18 (5) 360-5.
Journal code: 8200939. ISSN: 0106-9543.
CY Denmark
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199901
ED Entered STN: 19990209
Last Updated on STN: 19990209
Entered Medline: 19990122

L1 ANSWER 43 OF 79 MEDLINE
AN 1999033101 MEDLINE
DN 99033101 PubMed ID: 9813211
TI Murine **antibodies** against **E2** and hypervariable region 1 cross-reactively capture hepatitis C virus.
AU Esumi M; Ahmed M; Zhou Y H; Takahashi H; Shikata T
CS First Department of Pathology, Nihon University School of Medicine, 30-1, Ooyaguchikami-machi, Itabashi-ku, Tokyo, 173-0032, Japan..
mesumi@med.nihon-u.ac.jp
SO VIROLOGY, (1998 Nov 10) 251 (1) 158-64.
Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AB014488; GENBANK-AB014489; GENBANK-AB014490; GENBANK-AB015730; GENBANK-AB015731; GENBANK-AB015732; GENBANK-D13406
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 20000303
Entered Medline: 19981217

L1 ANSWER 44 OF 79 MEDLINE
AN 1999011351 MEDLINE

DN 99011351 PubMed ID: 9794763
TI Binding of hepatitis C virus to CD81.
AU Pileri P; Uematsu Y; Campagnoli S; Galli G; Falugi F; Petracca R; Weiner A J; Houghton M; Rosa D; Grandi G; Abrignani S
CS IRIS, Chiron, Siena 53100, Italy.
SO SCIENCE, (1998 Oct 30) 282 (5390) 938-41.
Journal code: 0404511. ISSN: 0036-8075.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199811
ED Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981119

L1 ANSWER 45 OF 79 MEDLINE
AN 1998419961 MEDLINE
DN 98419961 PubMed ID: 9749532
TI Hepatitis C virus envelope **DNA**-based immunization elicits humoral and cellular immune responses.
AU Lee S W; Cho J H; Lee K J; Sung Y C
CS Department of Life Science, Center for Biofunctional Molecules, School of Environmental Engineering, Pohang University of Science and Technology, Korea.
SO MOLECULES AND CELLS, (1998 Aug 31) 8 (4) 444-51.
Journal code: 9610936. ISSN: 1016-8478.
CY KOREA
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199811
ED Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981119

L1 ANSWER 46 OF 79 MEDLINE
AN 1998409001 MEDLINE
DN 98409001 PubMed ID: 9738621
TI Exposure to GB virus type C or hepatitis G virus in selected Australian adult and children populations.
AU Hyland C A; Mison L; Solomon N; Cockerill J; Wang L; Hunt J; Selvey L A; Faoagali J; Cooksley W G; Young I F; Trowbridge R; Borthwick I; Gowans E J
CS Australian Red Cross Blood Service, Queensland, Brisbane.
SO TRANSFUSION, (1998 Sep) 38 (9) 821-7.
Journal code: 0417360. ISSN: 0041-1132.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199809
ED Entered STN: 19981008
Last Updated on STN: 19981008
Entered Medline: 19980925

L1 ANSWER 47 OF 79 MEDLINE
AN 1998406262 MEDLINE
DN 98406262 PubMed ID: 9733898
TI Optimal induction of hepatitis C virus envelope-specific immunity by bicistronic plasmid **DNA** inoculation with the granulocyte-macrophage colony-stimulating factor gene.
AU Lee S W; Cho J H; Sung Y C
CS Department of Life Science, Center for Biofunctional Molecules, School of Environmental Engineering, Pohang University of Science and Technology,

Hyoja Dong, Pohang, 790-784 Korea.
SO JOURNAL OF VIROLOGY, (1998 Oct) 72 (10) 8430-6.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
ED Entered STN: 19981020
Last Updated on STN: 19981020
Entered Medline: 19981007

L1 ANSWER 48 OF 79 MEDLINE
AN 1998319200 MEDLINE
DN 98319200 PubMed ID: 9657118
TI Modulation of immune responses to hepatitis C virus envelope **E2** protein following injection of plasmid **DNA** using single or combined delivery routes.
AU Fournillier A; Nakano I; Vitvitski L; Depla E; Vidalin O; Maertens G; Trepo C; Inchauspe G
CS INSERM U271, Virus des hepatites, Retrovirus humains et Pathologies associees, Lyon, France.
SO HEPATOLOGY, (1998 Jul) 28 (1) 237-44.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199807
ED Entered STN: 19980811
Last Updated on STN: 19980811
Entered Medline: 19980730

L1 ANSWER 49 OF 79 MEDLINE
AN 1998214890 MEDLINE
DN 98214890 PubMed ID: 9554271
TI Immune responses against hepatitis C virus structural proteins following genetic immunisation.
AU Inchauspe G; Major M E; Nakano I; Vivitski L; Maisonnas M; Trepo C
CS INSERM, U271, Lyon, France.
SO DEVELOPMENTS IN BIOLOGICAL STANDARDIZATION, (1998) 92 163-8.
Journal code: 0427140. ISSN: 0301-5149.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980625

L1 ANSWER 50 OF 79 MEDLINE
AN 1998214889 MEDLINE
DN 98214889 PubMed ID: 9554270
TI Nucleic acid vaccines against hepatitis viruses.
AU Howard C R; Gray L; D'Mello F; Christopher J; Craske J
CS Department of Pathology and Infectious Diseases, Royal Veterinary College, London, U.K.
SO DEVELOPMENTS IN BIOLOGICAL STANDARDIZATION, (1998) 92 157-62.
Journal code: 0427140. ISSN: 0301-5149.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals

EM 199806
ED Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980625

L1 ANSWER 51 OF 79 MEDLINE
AN 1998204895 MEDLINE
DN 98204895 PubMed ID: 9535887
TI Efficient conditional transgene expression in hepatitis C virus cDNA transgenic mice mediated by the Cre/loxP system.
AU Wakita T; Taya C; Katsume A; Kato J; Yonekawa H; Kanegae Y; Saito I; Hayashi Y; Koike M; Kohara M
CS Department of Microbiology, 3-18-22 Honkomagome, Bunkyo-ku, Tokyo 113.. wakita@rinshoken.or.jp
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1998 Apr 10) 273 (15) 9001-6.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199805
ED Entered STN: 19980520
Last Updated on STN: 19980520
Entered Medline: 19980514

L1 ANSWER 52 OF 79 MEDLINE
AN 1998115111 MEDLINE
DN 98115111 PubMed ID: 9453021
TI GBV-C/HGV in hemodialysis patients: anti-**E2 antibodies** and GBV-C/HGV-RNA in serum and peripheral blood mononuclear cells.
AU Tribl B; Oesterreicher C; Pohanka E; Sunder-Plassmann G; Petermann D; Muller C
CS Klinische Abteilung fur Gastroenterologie und Hepatologie, Allgemeines Krankenhaus, Universitat Wien, Austria.
SO KIDNEY INTERNATIONAL, (1998 Jan) 53 (1) 212-6.
Journal code: 0323470. ISSN: 0085-2538.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199803
ED Entered STN: 19980312
Last Updated on STN: 19980312
Entered Medline: 19980305

L1 ANSWER 53 OF 79 MEDLINE
AN 1998085910 MEDLINE
DN 98085910 PubMed ID: 9425941
TI Comparison of the rate of sequence variation in the hypervariable region of **E2**/NS1 region of hepatitis C virus in normal and hypogammaglobulinemic patients.
AU Booth J C; Kumar U; Webster D; Monjardino J; Thomas H C
CS Academic Department of Medicine, St. Mary's Hospital Medical School, Imperial College of Science, Technology and Medicine, London, England, UK.
SO HEPATOLOGY, (1998 Jan) 27 (1) 223-7.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199802
ED Entered STN: 19980217
Last Updated on STN: 19980217
Entered Medline: 19980202

L1 ANSWER 54 OF 79 MEDLINE
AN 1998032594 MEDLINE
DN 98032594 PubMed ID: 9365890
TI Non-isotopic detection of hepatitis C virus quasispecies by single strand conformation polymorphism.
AU Lee J H; Stripf T; Roth W K; Zeuzem S
CS Medizinische Klinik II, Klinikum der Johann Wolfgang Goethe-Universitat, Frankfurt a.M., Germany.
SO JOURNAL OF MEDICAL VIROLOGY, (1997 Nov) 53 (3) 245-51.
Journal code: 7705876. ISSN: 0146-6615.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980217
Last Updated on STN: 19980217
Entered Medline: 19980205

L1 ANSWER 55 OF 79 MEDLINE
AN 97442179 MEDLINE
DN 97442179 PubMed ID: 9298728
TI Follow-up of four HIV-infected individuals after administration of hepatitis C virus and GBV-C/hepatitis G virus contaminated intravenous immunoglobulin: evidence for **HCV** but not for GBV-C/HGV transmission.
AU Berger A; Doerr H W; Scharrer I; Weber B
CS Institut fur Medizinische Virologie im Zentrum der Hygiene, Universitatskliniken Frankfurt, Frankfurt/Main, Germany.
SO JOURNAL OF MEDICAL VIROLOGY, (1997 Sep) 53 (1) 25-30.
Journal code: 7705876. ISSN: 0146-6615.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199710
ED Entered STN: 19971105
Last Updated on STN: 19971105
Entered Medline: 19971023

L1 ANSWER 56 OF 79 MEDLINE
AN 97404732 MEDLINE
DN 97404732 PubMed ID: 9261444
TI Immunization with plasmid **DNA** encoding hepatitis C virus envelope **E2** antigenic domains induces **antibodies** whose immune reactivity is linked to the injection mode.
AU Nakano I; Maertens G; Major M E; Vitvitski L; Dubuisson J; Fournillier A; De Martynoff G; Trepo C; Inchauspe G
CS INSERM U271, Lyon, France.
SO JOURNAL OF VIROLOGY, (1997 Sep) 71 (9) 7101-9.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199709
ED Entered STN: 19970926
Last Updated on STN: 19980206
Entered Medline: 19970917

L1 ANSWER 57 OF 79 MEDLINE
AN 97378935 MEDLINE
DN 97378935 PubMed ID: 9234532

TI **DNA** vaccination for the induction of immune responses against hepatitis C virus proteins.
AU Inchauspe G; Major M E; Nakano I; Vitvitski L; Trepo C
CS INSERM U271, Lyon, France.
SO VACCINE, (1997 Jun) 15 (8) 853-6.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199710
ED Entered STN: 19971105
Last Updated on STN: 19971105
Entered Medline: 19971023

L1 ANSWER 58 OF 79 MEDLINE
AN 97278060 MEDLINE
DN 97278060 PubMed ID: 9131394
TI Variations in the hypervariable region 1 of the envelope region **E2** of hepatitis C virus RNA appear associated with virus persistence independently of liver disease.
AU Brunetto M R; Suzuki T; Aizaky H; Flichman D; Colombatto P; Abate M L; Oliveri F; Matsuura Y; Bonino F; Miyamura T
CS Dept. of Gastroenterology, Azienda Ospedaliera S. Giovanni Battista, Torino, Italy.
SO ITALIAN JOURNAL OF GASTROENTEROLOGY, (1996 Dec) 28 (9) 499-504.
Journal code: 8000544. ISSN: 0392-0623.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199707
ED Entered STN: 19970812
Last Updated on STN: 19970812
Entered Medline: 19970728

L1 ANSWER 59 OF 79 MEDLINE
AN 97174230 MEDLINE
DN 97174230 PubMed ID: 9021964
TI A specific **antibody** response to **HCV E2** elicited in mice by intramuscular inoculation of plasmid **DNA** containing coding sequences for **E2**.
AU Tedeschi V; Akatsuka T; Shih J W; Battegay M; Feinstone S M
CS The Laboratory of Hepatitis Viruses, Center for Biologics Evaluation and Research, Food and Drug Administration, Bethesda, MD USA.
SO HEPATOLOGY, (1997 Feb) 25 (2) 459-62.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970313
Last Updated on STN: 19970313
Entered Medline: 19970303

L1 ANSWER 60 OF 79 MEDLINE
AN 97140461 MEDLINE
DN 97140461 PubMed ID: 8986942
TI **Antibody** responses to the hepatitis C virus **E2** protein: relationship to viraemia and prevalence in anti-**HCV** seronegative subjects.
AU Cerino A; Bissolati M; Cividini A; Nicosia A; Esumi M; Hayashi N; Mizuno K; Slobbe R; Oudshoorn P; Silini E; Asti M; Mondelli M U

CS Istituto di Clinica delle Malattie Infettive, Pavia, Italy.
SO JOURNAL OF MEDICAL VIROLOGY, (1997 Jan) 51 (1) 1-5.
Journal code: 7705876. ISSN: 0146-6615.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970414
Last Updated on STN: 19990129
Entered Medline: 19970328

L1 ANSWER 61 OF 79 MEDLINE
AN 97118791 MEDLINE
DN 97118791 PubMed ID: 8959633
TI Significance of anti-**E2** in the diagnosis of **HCV** infection in patients on maintenance hemodialysis: anti-**E2** is frequently detected among anti-**HCV** **antibody**-negative patients.
AU Lee D S; Lesniewski R R; Sung Y C; Min W K; Park S G; Lee K H; Kim H S
CS Department of Clinical Pathology, Korea Cancer Center Hospital, Seoul.
SO JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY, (1996 Nov) 7 (11) 2409-13.
Journal code: 9013836. ISSN: 1046-6673.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970321
Last Updated on STN: 19980206
Entered Medline: 19970313

L1 ANSWER 62 OF 79 MEDLINE
AN 97092739 MEDLINE
DN 97092739 PubMed ID: 8938159
TI Hypervariable region sequence in cryoglobulin-associated hepatitis C virus in sera of patients with chronic hepatitis C: relationship to **antibody** response against hypervariable region genome.
CM Comment in: Hepatology. 1999 Feb;29(2):614-5
AU Aiyama T; Yoshioka K; Okumura A; Takayanagi M; Iwata K; Ishikawa T; Kakumu S
CS Third Department of Internal Medicine, Nagoya University School of Medicine, Japan.
SO HEPATOLOGY, (1996 Dec) 24 (6) 1346-50.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199701
ED Entered STN: 19970128
Last Updated on STN: 20000303
Entered Medline: 19970109

L1 ANSWER 63 OF 79 MEDLINE
AN 97051514 MEDLINE
DN 97051514 PubMed ID: 8896240
TI Purification and in vitro-phospholabeling of secretory envelope proteins E1 and **E2** of hepatitis C virus expressed in insect cells.
AU Hussy P; Schmid G; Mous J; Jacobsen H
CS Department of a Pharmaceutical Research-Gene Technology, Basel, Switzerland.. Peter.Huessy@Roche.com
SO VIRUS RESEARCH, (1996 Nov) 45 (1) 45-57.
Journal code: 8410979. ISSN: 0168-1702.

CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199704
ED Entered STN: 19970414
Last Updated on STN: 19970414
Entered Medline: 19970403

L1 ANSWER 64 OF 79 MEDLINE
AN 97021254 MEDLINE
DN 97021254 PubMed ID: 8867614
TI Murine humoral immune response against recombinant structural proteins of hepatitis C virus distinct from those of patients.
AU Ahmed M; Shikata T; Esumi M
CS First Department of Pathology, Nihon University School of Medicine, Tokyo, Japan.
SO MICROBIOLOGY AND IMMUNOLOGY, (1996) 40 (2) 169-76.
Journal code: 7703966. ISSN: 0385-5600.
CY Japan
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199612
ED Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19961205

L1 ANSWER 65 OF 79 MEDLINE
AN 96423206 MEDLINE
DN 96423206 PubMed ID: 8825807
TI Hepatitis C viral infection in thalassemic children: clinical and molecular studies.
AU Ni Y H; Chang M H; Lin K H; Chen P J; Lin D T; Hsu H Y; Chen D S
CS Department of Pediatrics, National Taiwan University, Taipei.
SO PEDIATRIC RESEARCH, (1996 Feb) 39 (2) 323-8.
Journal code: 0100714. ISSN: 0031-3998.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199612
ED Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19961203

L1 ANSWER 66 OF 79 MEDLINE
AN 96105330 MEDLINE
DN 96105330 PubMed ID: 7503672
TI The serology of hepatitis C virus (**HCV**) infection: **antibody** crossreaction in the hypervariable region 1.
AU da Silva Cardoso M; Siemoneit K; Nemecek V; Epple S; Koerner K; Kubanek B
CS German Red Cross, Ulm, Federal Republic of Germany.
SO ARCHIVES OF VIROLOGY, (1995) 140 (10) 1705-13.
Journal code: 7506870. ISSN: 0304-8608.
CY Austria
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-X81467; GENBANK-X81468; GENBANK-X81469; GENBANK-X81470; GENBANK-X81471
EM 199601
ED Entered STN: 19960217
Last Updated on STN: 19960217

Entered Medline: 19960116

L1 ANSWER 67 OF 79 MEDLINE
AN 96061548 MEDLINE
DN 96061548 PubMed ID: 7595420
TI Fraction-specific populations of the hypervariable region of the hepatitis C virus in a patient with cryoglobulinemia.
AU Kurosaki M; Enomoto N; Nouchi T; Sakuma I; Marumo F; Sato C
CS Second Department of Internal Medicine, Faculty of Medicine, Tokyo Medical and Dental University, Japan.
SO JOURNAL OF MEDICAL VIROLOGY, (1995 Aug) 46 (4) 403-8.
Journal code: 7705876. ISSN: 0146-6615.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199511
ED Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951128

L1 ANSWER 68 OF 79 MEDLINE
AN 95266271 MEDLINE
DN 95266271 PubMed ID: 7538251
TI **Antibodies** in human sera specific to hypervariable region 1 of hepatitis C virus can block viral attachment.
AU Zibert A; Schreier E; Roggendorf M
CS Institute of Virology, University of Essen, Germany.
SO VIROLOGY, (1995 Apr 20) 208 (2) 653-61.
Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199506
ED Entered STN: 19950621
Last Updated on STN: 19960129
Entered Medline: 19950609

L1 ANSWER 69 OF 79 MEDLINE
AN 95146514 MEDLINE
DN 95146514 PubMed ID: 7844127
TI Transmission of the hepatitis-C virus by tissue transplantation.
AU Conrad E U; Gretch D R; Obermeyer K R; Moogk M S; Sayers M; Wilson J J; Strong D M
CS Northwest Tissue Center/Puget Sound Blood Center, Seattle, Washington.
SO JOURNAL OF BONE AND JOINT SURGERY. AMERICAN VOLUME, (1995 Feb) 77 (2) 214-24.
Journal code: 0014030. ISSN: 0021-9355.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals; AIDS
EM 199503
ED Entered STN: 19950316
Last Updated on STN: 19950316
Entered Medline: 19950307

L1 ANSWER 70 OF 79 MEDLINE
AN 95088611 MEDLINE
DN 95088611 PubMed ID: 7996156
TI Nucleotide sequence of hepatitis C virus (type 3b) isolated from a Japanese patient with chronic hepatitis C.
AU Chayama K; Tsubota A; Koida I; Arase Y; Saitoh S; Ikeda K; Kumada H

CS Department of Gastroenterology, Toranomon Hospital, Okinaka Memorial Institute for Medical Research, Tokyo, Japan.
SO JOURNAL OF GENERAL VIROLOGY, (1994 Dec) 75 (Pt 12) 3623-8.
Journal code: 0077340. ISSN: 0022-1317.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-D10585; GENBANK-D11443; GENBANK-D49374
EM 199501
ED Entered STN: 19950126
Last Updated on STN: 19960129
Entered Medline: 19950113

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ENTER DISPLAY FORMAT (BIB):bib abs

L1 ANSWER 27 OF 79 MEDLINE
AN 2000427880 MEDLINE
DN 20417952 PubMed ID: 10960458
TI Vaccination of chimpanzees with plasmid **DNA** encoding the hepatitis C virus (**HCV**) envelope **E2** protein modified the infection after challenge with homologous monoclonal **HCV**.
AU Forns X; Payette P J; Ma X; Satterfield W; Eder G; Mushahwar I K; Govindarajan S; Davis H L; Emerson S U; Purcell R H; Bukh J
CS Hepatitis Viruses, Laboratory of Infectious Diseases, NIAID, National Institutes of Health, Bethesda, MD.
NC N01-A1-45180 (NCI)
N01-A1-52705
N01-CO-56000
SO HEPATOLOGY, (2000 Sep) 32 (3) 618-25.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200009
ED Entered STN: 20000922
Last Updated on STN: 20000922
Entered Medline: 20000914
AB Hepatitis C virus (**HCV**) is an important cause of chronic liver disease worldwide. Development of vaccines to prevent **HCV** infection, or at least prevent progression to chronicity, is a major goal. In mice and rhesus macaques, a **DNA** vaccine encoding cell-surface **HCV**-envelope 2 (**E2**) glycoprotein stimulated stronger immune responses than a vaccine encoding intracellular **E2**. Therefore, we used **DNA** encoding surface-expressed **E2** to immunize chimpanzees 2768 and 3001. Chimpanzee 3001 developed anti-**E2** after the second immunization and **antibodies** to hypervariable region 1 (HVR1) after the third immunization. Although chimpanzee 2768 had only low levels of anti-**E2** after the third immunization, an anamnestic response occurred after **HCV** challenge. CTL responses to **E2** were not detected before challenge, but a strong response was detected after **HCV** challenge in chimpanzee 2768. An **E2**-specific CD4+ response was detected in chimpanzee 2768 before challenge and in both chimpanzees postchallenge. Three weeks after the last immunization, animals were challenged with 100 50% chimpanzee-infectious doses (CID(50)) of homologous monoclonal **HCV**. As a control, a naive chimpanzee was inoculated with 3 CID(50) of the challenge virus. The vaccine did not generate sterilizing immunity because both vaccinated chimpanzees were infected. However, both vaccinated chimpanzees resolved the infection

early whereas the control animal became chronically infected. Compared with the control animal, hepatitis appeared earlier in the course of the infection in both vaccinated chimpanzees. Therefore, **DNA** vaccine encoding cell surface-expressed **E2** did not elicit sterilizing immunity in chimpanzees against challenge with a monoclonal homologous virus, but did appear to modify the infection and might have prevented progression to chronicity.

L1 ANSWER 28 OF 79 MEDLINE
AN 2000413733 MEDLINE
DN 20341727 PubMed ID: 10882577
TI **DNA** prime-canarypox boost with polycistronic hepatitis C virus (**HCV**) genes generates potent immune responses to **HCV** structural and nonstructural proteins.
AU Pancholi P; Liu Q; Tricoche N; Zhang P; Perkus M E; Prince A M
CS Laboratory of Virology, The Lindlsey F. Kimball Research Institute of the New York Blood Center, New York, NY 10021, USA.. ppanchol@nybc.org
SO JOURNAL OF INFECTIOUS DISEASES, (2000 Jul) 182 (1) 18-27.
Journal code: 0413675. ISSN: 0022-1899.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200008
ED Entered STN: 20000907
Last Updated on STN: 20000907
Entered Medline: 20000828
AB **DNA** vaccination was employed to study immune responses to hepatitis C virus (**HCV**) proteins. As an immunizing strategy, we studied immune responses of BALB/c (H-2d) and C57BL/6 mice (H-2b) to **HCV** genes delivered intramuscularly as a polycistronic construct capsid/E1/**E2**/NS2/NS3 (pRC/C-NS3) encoding 5 structural and nonstructural proteins. We also evaluated canarypox virus containing the same **HCV** genes as a means for potentiating immune responses to naked **DNA**. Our results indicate that mice that received a polycistronic pRC/C-NS3 with canarypox booster had enhanced **antibody** and cellular responses to **HCV** proteins. Immunodominant CD8(+) T cell responses to several **HCV** structural and nonstructural proteins, characterized by cytotoxicity and interferon (IFN)-gamma production or IFN-gamma production without significant cytotoxicity, were observed in both strains of mice. The combination of naked **DNA** with a nonreplicating canarypox booster encoding **HCV** polycistronic pRC/C-NS3 genes appears to diversify and enhance T cell responses to **HCV** proteins.

L1 ANSWER 29 OF 79 MEDLINE
AN 2000387891 MEDLINE
DN 20347351 PubMed ID: 10888628
TI Evaluation of hepatitis C virus glycoprotein **E2** for vaccine design: an endoplasmic reticulum-retained recombinant protein is superior to secreted recombinant protein and **DNA**-based vaccine candidates.
AU Heile J M; Fong Y L; Rosa D; Berger K; Saletti G; Campagnoli S; Bensi G; Capo S; Coates S; Crawford K; Dong C; Wininger M; Baker G; Cousens L; Chien D; Ng P; Archangel P; Grandi G; Houghton M; Abrignani S
CS IRIS Research Center, Chiron, 53100 Siena, Italy.
SO JOURNAL OF VIROLOGY, (2000 Aug) 74 (15) 6885-92.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200008
ED Entered STN: 20000818

Last Updated on STN: 20000818
Entered Medline: 20000810

AB Hepatitis C virus (**HCV**) is the leading causative agent of blood-borne chronic hepatitis and is the target of intensive vaccine research. The virus genome encodes a number of structural and nonstructural antigens which could be used in a subunit vaccine. The **HCV** envelope glycoprotein **E2** has recently been shown to bind CD81 on human cells and therefore is a prime candidate for inclusion in any such vaccine. The experiments presented here assessed the optimal form of **HCV E2** antigen from the perspective of **antibody** generation. The quality of recombinant **E2** protein was evaluated by both the capacity to bind its putative receptor CD81 on human cells and the ability to elicit **antibodies** that inhibited this binding (NOB **antibodies**). We show that truncated **E2** proteins expressed in mammalian cells bind with high efficiency to human cells and elicit NOB **antibodies** in guinea pigs only when purified from the core-glycosylated intracellular fraction, whereas the complex-glycosylated secreted fraction does not bind and elicits no NOB **antibodies**. We also show that carbohydrate moieties are not necessary for **E2** binding to human cells and that only the monomeric nonaggregated fraction can bind to CD81. Moreover, comparing recombinant intracellular **E2** protein to several **E2** -encoding **DNA** vaccines in mice, we found that protein immunization is superior to **DNA** in both the quantity and quality of the **antibody** response elicited. Together, our data suggest that to elicit **antibodies** aimed at blocking **HCV** binding to CD81 on human cells, the antigen of choice is a mammalian cell-expressed, monomeric **E2** protein purified from the intracellular fraction.

L1 ANSWER 31 OF 79 MEDLINE
AN 2000148989 MEDLINE
DN 20148989 PubMed ID: 10684312
TI Enhancement of immunoglobulin G2a and cytotoxic T-lymphocyte responses by a booster immunization with recombinant hepatitis C virus **E2** protein in **E2 DNA**-primed mice.
AU Song M K; Lee S W; Suh Y S; Lee K J; Sung Y C
CS Department of Life Science, Pohang University of Science and Technology, Pohang, Republic of Korea.
SO JOURNAL OF VIROLOGY, (2000 Mar) 74 (6) 2920-5.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
ED Entered STN: 20000413
Last Updated on STN: 20000413
Entered Medline: 20000403

AB The induction of strong cytotoxic T-lymphocyte (CTL) and humoral responses appear to be essential for the elimination of persistently infecting viruses, such as hepatitis C virus (**HCV**). Here, we tested several vaccine regimens and demonstrate that a combined vaccine regimen, consisting of **HCV E2 DNA** priming and boosting with recombinant **E2** protein, induces the strongest immune responses to **HCV E2** protein. This combined vaccine regimen augments **E2**-specific immunoglobulin G2a (IgG2a) and CD8(+) CTL responses to a greater extent than immunizations with recombinant **E2** protein and **E2 DNA** alone, respectively. In addition, the data showed that a protein boost following one **DNA** priming was also effective, but much less so than those following two **DNA** primings. These data indicate that sufficient **DNA** priming is essential for the enhancement of **DNA** encoded antigen-specific immunity by a booster immunization with

recombinant **E2** protein. Furthermore, the enhanced CD8(+) CTL and IgG2a responses induced by our combined vaccine regimens are closely associated with the protection of BALB/c mice from challenge with modified CT26 tumor cells expressing **HCV E2** protein. Together, our results provide important implications for vaccine development for many pathogens, including **HCV**, which require strong **antibody** and CTL responses.

L1 ANSWER 33 OF 79 MEDLINE
AN 2000086996 MEDLINE
DN 20086996 PubMed ID: 10608749
TI Immune responses to hepatitis C virus structural and nonstructural proteins induced by plasmid **DNA** immunizations.
AU Gordon E J; Bhat R; Liu Q; Wang Y F; Tackney C; Prince A M
CS Laboratory of Virology, Lindsley F. Kimball Research Institute of the New York Blood Center, New York, New York 10021, USA.
SO JOURNAL OF INFECTIOUS DISEASES, (2000 Jan) 181 (1) 42-50.
Journal code: 0413675. ISSN: 0022-1899.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200003
ED Entered STN: 20000320
Last Updated on STN: 20000320
Entered Medline: 20000303
AB **DNA**-based immunizations have been used to elicit cellular immunity to hepatitis C virus (**HCV**) proteins in mice. Mice were immunized by intramuscular or intradermal injections of plasmid **DNA** derived from a near-full-length **HCV** genotype 1b genomic clone (pRC/B2) or individual genomic clones. These immunizations induced cytotoxic T lymphocytes (CTLs), as revealed in standard chromium-release assays that used syngeneic peptide-pulsed or transfected target cells. These assays identified four CTL epitopes within the capsid, E1, and **E2** regions of the polyprotein sequence of **HCV** genotype 1a that were cross-reactive with **HCV** genotype 1b. Additionally, CTLs derived from mice immunized with either NS3 or NS5 specifically lysed target cells sensitized to either the genotype 1a or 1b gene products. Nucleic acid immunizations also generated humoral immunity to **HCV** proteins, as detected by anti-**HCV** reactivity to NS3 and capsid in ELISAs and immunoblot assays.

L1 ANSWER 36 OF 79 MEDLINE
AN 1999370193 MEDLINE
DN 99370193 PubMed ID: 10438839
TI Expression of noncovalent hepatitis C virus envelope E1-**E2** complexes is not required for the induction of **antibodies** with neutralizing properties following **DNA** immunization.
AU Fournillier A; Depla E; Karayiannis P; Vidalin O; Maertens G; Trepo C; Inchauspe G
CS INSERM U271, Virus des hepatites, Retrovirus humains et Pathologies associees, 69424 Lyon Cedex, France.
SO JOURNAL OF VIROLOGY, (1999 Sep) 73 (9) 7497-504.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199909
ED Entered STN: 19990921
Last Updated on STN: 19990921
Entered Medline: 19990907
AB Interactive glycoproteins present on the surface of viral particles represent the main target of neutralizing **antibodies**. The

ability of **DNA** vaccination to induce **antibodies** directed at such structures was investigated by using eight different expression plasmids engineered either to favor or to prevent interaction between the hepatitis C virus (**HCV**) envelope glycoproteins E1 and **E2**. Independently of the injection route (intramuscular or intraepidermal), plasmids expressing antigens capable of forming heterodimers presumed to be the prebudding form of the **HCV** envelope protein complex failed to induce any significant, stable **antibodies** following injection in mice. In sharp contrast, high titers of **antibodies** directed at both conformational and linear determinants were induced by using plasmids expressing severely truncated antigens that have lost the ability to form native complexes. In addition, only a truncated form of **E2** induced **antibodies** reacting against the hypervariable region 1 of **E2** (specifically with the C-terminal part of it) known to contain a neutralization site. When injected intraepidermally into small primates, the truncated **E2**-encoding plasmid induced **antibodies** able to neutralize in vitro the binding of a purified **E2** protein onto susceptible cells. Because such **antibodies** have been associated with viral clearance in both humans and chimpanzees, these findings may have important implications for the development of protective immunity against **HCV**.

L1 ANSWER 38 OF 79 MEDLINE
AN 1999231951 MEDLINE
DN 99231951 PubMed ID: 10217599
TI **DNA** immunization of mice and macaques with plasmids encoding hepatitis C virus envelope **E2** protein expressed intracellularly and on the cell surface.
AU Forns X; Emerson S U; Tobin G J; Mushahwar I K; Purcell R H; Bukh J
CS Hepatitis Viruses and Molecular Hepatitis Sections, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD 20892-0740, USA.
NC AI-52705 (NIAID)
CO-56000 (NCI)
SO VACCINE, (1999 Apr 9) 17 (15-16) 1992-2002.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907
ED Entered STN: 19990715
Last Updated on STN: 19990715
Entered Medline: 19990708
AB We analyzed the humoral immune response elicited by hepatitis C virus (**HCV**) **E2** protein expressed in vivo after injection of plasmid **DNA** into mice and rhesus macaques. Three plasmids were used for immunization: a plasmid containing the entire sequence of the **E2** and p7 genes (pE2); a plasmid encoding a truncated form of the **E2** protein targeted to the cell surface (pE2surf); a control plasmid (pDisplay) lacking an **HCV** insert. Each plasmid was injected intramuscularly into 5 mice and intraepidermally (via gene gun) into 5 mice. Immunization was repeated three times at three week intervals. Five macaques were injected intramuscularly (two with pE2, two with pE2surf and one with pDisplay) and immunization was repeated after 8 weeks. All mice immunized via gene gun with pE2 or pE2surf developed anti-**E2**. The animals immunized with pE2surf developed an earlier and stronger humoral immune response than those immunized with pE2. Only 2 of the mice injected by the intramuscular route, both immunized with pE2surf, developed detectable anti-**E2**. One of the two macaques immunized with pE2 and both macaques immunized with pE2surf developed anti-**E2**; the humoral immune response was much stronger in the animals immunized with pE2surf. Our results suggest that presentation of

HCV E2 on the cell surface may increase its immunogenicity while preserving its ability to react with **antibodies** generated during a natural infection.

L1 ANSWER 39 OF 79 MEDLINE
AN 1999174033 MEDLINE
DN 99174033 PubMed ID: 10074186
TI Long-term follow-up of chimpanzees inoculated with the first infectious clone for hepatitis C virus.
AU Major M E; Mihalik K; Fernandez J; Seidman J; Kleiner D; Kolykhalov A A; Rice C M; Feinstone S M
CS Laboratory of Hepatitis Research, Center for Biologics Evaluation and Research, Food and Drug Administration, Bethesda, Maryland 20892, USA.
NC AI40034 (NIAID)
CA57973 (NCI)
SO JOURNAL OF VIROLOGY, (1999 Apr) 73 (4) 3317-25.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199905
ED Entered STN: 19990517
Last Updated on STN: 19990517
Entered Medline: 19990506
AB Two chimpanzees (Ch1535 and Ch1536) became infected with hepatitis C virus (**HCV**) following intrahepatic inoculation with RNA transcribed from a full-length cDNA clone of the virus. Both animals were persistently infected and have been followed for 60 weeks. They showed similar responses to infection, with transient liver enzyme elevations and liver inflammatory responses, which peaked at weeks 17 (Ch1535) and 12 (Ch1536) postinoculation (p.i.). **Antibody** responses to structural and nonstructural proteins were first detected at weeks 13 (Ch1535) and 10 (Ch1536) p.i. Serum RNA titers increased steadily during the first 10 to 13 weeks but decreased sharply in both animals following **antibody** and inflammatory responses. Despite direct evidence of humoral immune responses to multiple viral antigens, including hypervariable region 1 (HVR1), both animals remained chronically infected. Detailed sequence analysis of serum **HCV** RNA revealed no change in the majority HVR1 sequence in Ch1535 and a single-amino-acid mutation in Ch1536, with very little clonal variation in either animal. Full-length genome analysis at week 60 revealed several amino acid substitutions localized to antigens E1, **E2**, p7, NS3, and NS5. Of these, 55.6 and 40% were present as the majority sequence in serum RNA isolated at week 26 p.i. (Ch1535) and week 22 p.i. (Ch1536), respectively, and could represent immune escape mutations. Mutations accumulated at a rate of 1.57 x 10(-3) and 1.48 x 10(-3) nucleotide substitutions/site/year for Ch1535 and Ch1536, respectively. Taken together, these data indicate that establishment of a persistent **HCV** infection in these chimpanzees is not due to changes in HVR1; however, the possibility remains that mutations arising in other parts of the genome contributed to this persistence.

L1 ANSWER 40 OF 79 MEDLINE
AN 1999098999 MEDLINE
DN 99098999 PubMed ID: 9882313
TI Viral persistence, **antibody** to E1 and **E2**, and hypervariable region 1 sequence stability in hepatitis C virus-inoculated chimpanzees.
AU Bassett S E; Thomas D L; Brasky K M; Lanford R E
CS Department of Virology and Immunology, Southwest Foundation for Biomedical Research, San Antonio, Texas 78227, USA.
NC AI40035 (NIAID)
SO JOURNAL OF VIROLOGY, (1999 Feb) 73 (2) 1118-26.
Journal code: 0113724. ISSN: 0022-538X.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199902
ED Entered STN: 19990301
Last Updated on STN: 19990301
Entered Medline: 19990218
AB The relationship of viral persistence, the immune response to hepatitis C virus (**HCV**) envelope proteins, and envelope sequence variability was examined in chimpanzees. **Antibody** reactivity to the **HCV** envelope proteins E1 or **E2** was detected by enzyme-linked immunosorbent assay (ELISA) in more than 90% of a human serum panel. Although the ELISAs appeared to be sensitive indicators of **HCV** infection in human serum panels, the results of a cross-sectional study revealed that a low percentage of **HCV** -inoculated chimpanzees had detectable **antibody** to E1 (22%) and **E2** (15%). Viral clearance, which was recognized in 28 (61%) of the chimpanzees, was not associated with an **antibody** response to E1 or **E2**. On the contrary, **antibody** to **E2** was observed only in viremic chimpanzees. A longitudinal study of animals that cleared the viral infection or became chronically infected confirmed the low level of **antibody** to E1, **E2**, and the HVR-1. In 10 chronically infected animals, the sequence variation in the **E2** hypervariable region (HVR-1) was minimal and did not coincide with **antibody** to **E2** or to the HVR-1. In addition, low nucleotide and amino acid sequence variation was observed in the E1 and **E2** regions from two chronically infected chimpanzees. These results suggest that mechanisms in addition to the emergence of HVR-1 **antibody** escape variants are involved in maintaining viral persistence. The significance of **antibodies** to E1 and **E2** in the chimpanzee animal model is discussed.

L1 ANSWER 43 OF 79 MEDLINE
AN 1999033101 MEDLINE
DN 99033101 PubMed ID: 9813211
TI Murine **antibodies** against **E2** and hypervariable region 1 cross-reactively capture hepatitis C virus.
AU Esumi M; Ahmed M; Zhou Y H; Takahashi H; Shikata T
CS First Department of Pathology, Nihon University School of Medicine, 30-1, Ooyaguchikami-machi, Itabashi-ku, Tokyo, 173-0032, Japan.. mesumi@med.nihon-u.ac.jp
SO VIROLOGY, (1998 Nov 10) 251 (1) 158-64.
Journal code: 0110674. ISSN: 0042-6822.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-AB014488; GENBANK-AB014489; GENBANK-AB014490; GENBANK-AB015730; GENBANK-AB015731; GENBANK-AB015732; GENBANK-D13406
EM 199812
ED Entered STN: 19990115
Last Updated on STN: 20000303
Entered Medline: 19981217
AB The absence of readily available animal and cell culture models for hepatitis C virus (**HCV**) replication has bottlenecked research on protective immunity to **HCV** infection. **Antibodies** reactive with **HCV** virions in vitro are assumed to be candidates for neutralizing or inhibitory **antibodies** against **HCV**. To find potentially neutralizing or inhibitory **antibody** candidates, anti-C, anti-E1, anti-**E2**, and anti-HVR1 antisera acquired from mice immunized with corresponding recombinant proteins or synthetic peptides were used to capture **HCV** viral particles in vitro based on **antibody**-virus interaction assays. Both anti-

E2 and anti-HVR1 **antibodies** effectively captured **HCV** in vitro. Furthermore, it was found that anti-**E2** and anti-HVR1 **antibodies** could immunoprecipitate an isolate of **HCV** unrelated to the original antigenic **HCV** isolate. ELISA confirmed that anti-HVR1 **antibodies** cross-reactively bind to these unrelated HVR1 peptides. These findings suggest that anti-**E2** and anti-HVR1 **antibodies** induced in mice have the ability to bind with **HCV** particles in an isolate cross-reactive manner and highlight the possible application of combining several sequences of HVR1 to generate broadly reactive anti-HVR1 **antibodies**.

L1 ANSWER 44 OF 79 MEDLINE
AN 1999011351 MEDLINE
DN 99011351 PubMed ID: 9794763
TI Binding of hepatitis C virus to CD81.
AU Pileri P; Uematsu Y; Campagnoli S; Galli G; Falugi F; Petracca R; Weiner A J; Houghton M; Rosa D; Grandi G; Abrignani S
CS IRIS, Chiron, Siena 53100, Italy.
SO SCIENCE, (1998 Oct 30) 282 (5390) 938-41.
Journal code: 0404511. ISSN: 0036-8075.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199811
ED Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981119
AB Chronic hepatitis C virus (**HCV**) infection occurs in about 3 percent of the world's population and is a major cause of liver disease. **HCV** infection is also associated with cryoglobulinemia, a B lymphocyte proliferative disorder. Virus tropism is controversial, and the mechanisms of cell entry remain unknown. The **HCV** envelope protein **E2** binds human CD81, a tetraspanin expressed on various cell types including hepatocytes and B lymphocytes. Binding of **E2** was mapped to the major extracellular loop of CD81. Recombinant molecules containing this loop bound **HCV** and **antibodies** that neutralize **HCV** infection in vivo inhibited virus binding to CD81 in vitro.

L1 ANSWER 45 OF 79 MEDLINE
AN 1998419961 MEDLINE
DN 98419961 PubMed ID: 9749532
TI Hepatitis C virus envelope **DNA**-based immunization elicits humoral and cellular immune responses.
AU Lee S W; Cho J H; Lee K J; Sung Y C
CS Department of Life Science, Center for Biofunctional Molecules, School of Environmental Engineering, Pohang University of Science and Technology, Korea.
SO MOLECULES AND CELLS, (1998 Aug 31) 8 (4) 444-51.
Journal code: 9610936. ISSN: 1016-8478.
CY KOREA
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199811
ED Entered STN: 19990106
Last Updated on STN: 19990106
Entered Medline: 19981119
AB The vaccine development for hepatitis C virus (**HCV**) is highly urgent to prevent non A and non B hepatitis. It was recently shown that the **HCV** envelope proteins appeared to the key viral antigens to

induce protective immunity. To generate immune responses to the **HCV** envelope proteins on the **DNA**-based immunization, various envelope gene-containing plasmids were constructed. For efficient expression and secretion of envelope proteins, the signal sequence of each envelope protein was replaced with either herpes simplex virus type-1 (HSV-1) gD or signal sequence of gD and truncated C-terminal hydrophobic regions of envelope proteins. The intramuscular injection of these plasmids generated a significant level of **antibody** titers to the E1 and **E2** proteins, which maximally reached 850 and 25,000 respectively. The secreted form of each envelope protein and the fusion of the highly immunogenic gD proteins were shown to have no significant effect on generating immune responses to the envelope proteins. In addition, immunized rats appeared to generate **antibodies** directed to the homologous HVR-1 peptide. Splenic lymphocytes from immunized rats were shown to induce significant T-cell proliferative responses with the stimulation of recombinant E1 and **E2** proteins. Our results demonstrated that the **HCV** envelope-**DNA** based immunization could elicit both humoral and cellular immune responses.

L1 ANSWER 47 OF 79 MEDLINE
AN 1998406262 MEDLINE
DN 98406262 PubMed ID: 9733898
TI Optimal induction of hepatitis C virus envelope-specific immunity by bicistronic plasmid **DNA** inoculation with the granulocyte-macrophage colony-stimulating factor gene.
AU Lee S W; Cho J H; Sung Y C
CS Department of Life Science, Center for Biofunctional Molecules, School of Environmental Engineering, Pohang University of Science and Technology, Hyoja Dong, Pohang, 790-784 Korea.
SO JOURNAL OF VIROLOGY, (1998 Oct) 72 (10) 8430-6.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199810
ED Entered STN: 19981020
Last Updated on STN: 19981020
Entered Medline: 19981007
AB In this study, we have constructed various **DNA** vaccine vectors that carried hepatitis C virus (**HCV**) envelope genes without and with the granulocyte-macrophage colony-stimulating factor (GM-CSF) gene in several different ways. In Buffalo rats that received plasmids carrying the **HCV** envelope genes, which encode envelope proteins E1 and **E2**, both **antibody** and lymphoproliferative responses against these proteins were induced. These responses were greatly enhanced by the codelivery of the GM-CSF gene. In particular, inoculation with a bicistronic plasmid that independently expressed the GM-CSF gene and the envelope genes in the same construct generated the highest **antibody** titers and significantly increased lymphoproliferative responses against these proteins. Moreover, strong **antibody** responses to homologous and heterologous hypervariable region 1 peptides were elicited in the immunized rats.

L1 ANSWER 48 OF 79 MEDLINE
AN 1998319200 MEDLINE
DN 98319200 PubMed ID: 9657118
TI Modulation of immune responses to hepatitis C virus envelope **E2** protein following injection of plasmid **DNA** using single or combined delivery routes.
AU Fournillier A; Nakano I; Vitvitski L; Depla E; Vidalin O; Maertens G; Trepo C; Inchauspe G
CS INSERM U271, Virus des hepatites, Retrovirus humains et Pathologies

associees, Lyon, France.
SO HEPATOLOGY, (1998 Jul) 28 (1) 237-44.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199807
ED Entered STN: 19980811
Last Updated on STN: 19980811
Entered Medline: 19980730
AB Different delivery routes of plasmid **DNA** may result in the induction of differential humoral and cellular immunity. We have studied the influence of two main routes of plasmid injection, performed intramuscularly and intraepidermally using a gene gun, for the induction of immune responses specific to hepatitis C virus (**HCV**) envelope protein **E2**. Three plasmids expressing different immunogenic domains of **E2** (amino acids [aa] 384443, aa 504-555, and aa 384-746) were injected into BALB/c mice according to five different protocols using various combinations of intramuscular (i.m.) or intraepidermal (i.e.) primary and booster injections. Seroconversion rates, **antibody** titers and isotypes, epitope recognition, and T-helper (Th) release cytokine profiles were analyzed. **Antibody** titers and epitope recognition were linked to either or both the nature of the immunogen expressed and the delivery route chosen. In all cases, the lowest **antibody** titers were obtained using single i.m.-based protocols. Independently of the **antibody** titers generated, only some specific i.e.-combined delivery routes induced **antibodies** able to recognize determinants located in the N-terminal of **E2** (aa 384411 and aa 411437) and mimicked by synthetic peptides. By contrast, the **antibody** isotypes and the splenic cytokine production identified were independent of the plasmids used and the delivery route implemented. All conditions resulted in Th-1 like responses suggested by the exclusive detection of IgG2a and 2b **antibodies** and the production of interferon gamma (INF-gamma) but no interleukin-4 (IL-4). Overall, our results suggest that the combination of i.m. and i.e. delivery routes provides the most efficient way to induce a broad immune response against **HCV**-**E2**.

L1 ANSWER 49 OF 79 MEDLINE
AN 1998214890 MEDLINE
DN 98214890 PubMed ID: 9554271
TI Immune responses against hepatitis C virus structural proteins following genetic immunisation.
AU Inchauspe G; Major M E; Nakano I; Vivitski L; Maisonnas M; Trepo C
CS INSERM, U271, Lyon, France.
SO DEVELOPMENTS IN BIOLOGICAL STANDARDIZATION, (1998) 92 163-8.
Journal code: 0427140. ISSN: 0301-5149.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980625
AB We have used direct **DNA** inoculation to study the in vivo induction of both humoral and cellular immune responses to hepatitis C virus (**HCV**) encoded structural antigens. Following immunisation of mice, immune responses were compared using plasmids encoding full-length or partial **HCV** gene sequences for the nucleocapsid and envelope **E2** proteins. Plasmids encoding secreted or non-secreted forms of the immunogens, including constructs expressing **HCV** sequences fused with the hepatitis B virus surface antigen (

HCV-HBV chimeras), were evaluated. Results indicate that: (i) all constructs induced specific anti-**HCV antibodies**; (ii) **antibody** titres ranged from 1:100 to > 1:100,000; (iii) all **HCV DNA** immunogens induced a predominant Th1 response with the induction of IgG2a **antibodies**; (iv) the secretion level of the antigens and immune responses was not always correlated and (v) CTL could be detected against both **HCV** and HBV determinants.

L1 ANSWER 50 OF 79 MEDLINE
AN 1998214889 MEDLINE
DN 98214889 PubMed ID: 9554270
TI Nucleic acid vaccines against hepatitis viruses.
AU Howard C R; Gray L; D'Mello F; Christopher J; Craske J
CS Department of Pathology and Infectious Diseases, Royal Veterinary College, London, U.K.
SO DEVELOPMENTS IN BIOLOGICAL STANDARDIZATION, (1998) 92 157-62.
Journal code: 0427140. ISSN: 0301-5149.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980625
AB Direct **DNA** intramuscular or intradermal injection of plasmids containing viral genes under the control of viral promoters is an efficient means of stimulating both class I and class II-mediated antiviral responses. Viral hepatitis B and C are suitable candidates for this approach, particularly as therapeutic immunogens for chronically infected individuals. Several groups have shown that the S gene of HBV is expressed in murine muscle and stimulates a high titre and long-lasting anti-HBs response. Uniquely, CD8+ CTL responses are also induced to HBsAg. No vaccine exists for **HCV**. Therefore the structural genes (C + E1 + **E2**) have been cloned as a 2,831 bp fragment from a genotype 1a isolate into the vector pcDNA3. The resulting plasmid **DNA** was injected directly into the quadriceps muscle of three-week-old BALB/c mice. Intracellular-expressed E1 and **E2** proteins thus represent the complete spectrum of native structural epitopes, including those dependent on glycosylation and protein folding. Mouse antisera were tested for reactivity against conserved sequences using overlapping 7-mer peptides. Two conserved, overlapping epitopes were identified in **E2** spanning residues 581-591 and 590-603. This domain represents one of seven major **E2** antigenic domains recognized by **HCV** human **antibodies**, one of three with antigenic homologies to related flavivirus proteins. Thus antigen is presented with high efficiency following **DNA** injection and offers the potential of high rates of seroconversion and virus clearance in those predisposed to virus-induced chronic liver disease.

L1 ANSWER 56 OF 79 MEDLINE
AN 97404732 MEDLINE
DN 97404732 PubMed ID: 9261444
TI Immunization with plasmid **DNA** encoding hepatitis C virus envelope **E2** antigenic domains induces **antibodies** whose immune reactivity is linked to the injection mode.
AU Nakano I; Maertens G; Major M E; Vitvitski L; Dubuisson J; Fournillier A; De Martynoff G; Trepo C; Inchauspe G
CS INSERM U271, Lyon, France.
SO JOURNAL OF VIROLOGY, (1997 Sep) 71 (9) 7101-9.
Journal code: 0113724. ISSN: 0022-538X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English

FS Priority Journals
EM 199709
ED Entered STN: 19970926
Last Updated on STN: 19980206
Entered Medline: 19970917
AB Plasmids expressing different domains of the hepatis C virus (**HCV**) envelope **E2** glycoprotein from a genotype 1a isolate were constructed to compare the immunogenic potential of **E2** in nucleic acid-based immunizations. One plasmid, pCIE2t, expressed a C-terminally truncated form of **E2**, while others, pS2.SE2A to pS2.SE2E, encoded the adjacent 60-amino-acid (aa) sequences of **E2** (inserts A to E) expressed as a fusion with the hepatitis B virus surface antigen. BALB/c mice were given injections of the plasmids intramuscularly (i.m.) or intraepidermally (i.e.) via a gene gun (biolistic introduction), and induced humoral immune responses were evaluated. The i.e. injections resulted in higher seroconversion rates and **antibody** titers, up to 100-fold, than did the i.m. injections (P = 0.01 to 0.04). Three restricted immunogenic domains, E2A (aa 384 to 443), E2C (aa 504 to 555), and E2E (aa 609 to 674), that yielded **antibody** titers ranging from 1:59 to > 1:43,700 could be identified. Subtype 1a- and 1b-derived **E2** antigens and synthetic peptides were used in Western blot and enzyme-linked immunosorbent assay analyses, which revealed that the cross-reactivity of the plasmid-induced **antibodies** was linked both to the type of antigen expressed and to the injection mode. Induced anti-**E2** **antibodies** could immunoprecipitate noncovalent E1E2 complexes believed to exist on the surface of **HCV** virions. This study allowed us to identify restricted immunogenic domains within **E2** and demonstrated that different routes of injection of **HCV** **E2** plasmids can result in quantitatively and qualitatively different humoral immune responses.

L1 ANSWER 57 OF 79 MEDLINE
AN 97378935 MEDLINE
DN 97378935 PubMed ID: 9234532
TI **DNA** vaccination for the induction of immune responses against hepatitis C virus proteins.
AU Inchauspe G; Major M E; Nakano I; Vitvitski L; Trepo C
CS INSERM U271, Lyon, France.
SO VACCINE, (1997 Jun) 15 (8) 853-6.
Journal code: 8406899. ISSN: 0264-410X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; AIDS
EM 199710
ED Entered STN: 19971105
Last Updated on STN: 19971105
Entered Medline: 19971023
AB Recent analysis of clinical and experimental cases of hepatitis C virus (**HCV**) infection suggest the possible role of the viral nucleocapsid (C), the nonstructural protein 3 (NS3) and the envelope glycoproteins E1 and/or **E2** in the mounting of immune responses capable to control infection (Botarelli et al., Gastroenterology, 1993, 104, 580-587; Choo et al., Proc. Natl Acad. Sci. USA, 1994, 91, 1294-1298). We have used **DNA**-based immunization to study the immune responses that can be induced by injecting **DNA**-derived immunogens encoding C and **E2** sequences. Comparative analysis were performed in mice using expression plasmids containing full-length or partial gene sequences cloned in fusion with the hepatitis B virus surface antigen (HBV-**HCV** chimeras). The results obtained indicate that: (1) anti-C and anti-**E2** **antibodies** can be induced with all constructs including the HBV-**HCV** chimeras; (2) titers range from 1:100 to 1:100000 depending on the antigen and nucleotide sequence context; (3) all **HCV** **DNA** immunogens are associated with a predominant Th1

response; (4) CTL can be detected against both **HCV** and HBV determinants.

L1 ANSWER 58 OF 79 MEDLINE
AN 97278060 MEDLINE
DN 97278060 PubMed ID: 9131394
TI Variations in the hypervariable region 1 of the envelope region **E2** of hepatitis C virus RNA appear associated with virus persistence independently of liver disease.
AU Brunetto M R; Suzuki T; Aizaky H; Flichman D; Colombatto P; Abate M L; Oliveri F; Matsuura Y; Bonino F; Miyamura T
CS Dept. of Gastroenterology, Azienda Ospedaliera S. Giovanni Battista, Torino, Italy.
SO ITALIAN JOURNAL OF GASTROENTEROLOGY, (1996 Dec) 28 (9) 499-504.
Journal code: 8000544. ISSN: 0392-0623.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199707
ED Entered STN: 19970812
Last Updated on STN: 19970812
Entered Medline: 19970728
AB The high genetic variability of the 5' end of the envelope protein-coding region **E2** (HVR1 **E2**) of Hepatitis C Virus (**HCV**) RNA has been suggested by many authors to play an important role in both virus persistence and outcome of liver disease. We studied the relations between HVR1 **E2** variability and **HCV** genotypes, **HCV**-RNA levels and liver disease in 8 chronic **HCV** carriers (5 males and 3 females, median age 41 years, followed-up for a mean period of 3 years). Four were healthy **HCV** carriers with persistently normal ALT levels and normal liver histology and 4 patients with chronic liver disease. In each patient, the HVR1 **E2** variability of 2 serum **HCV**-RNA isolates obtained at least 12 months apart were evaluated by direct sequencing. Nucleotide and amino acid homologies ranged between 97.6%-57.1% and 92.8%-25% in healthy carriers and 95.2%-55.9% and 89.3%-32.1% in patients, respectively. We did not observe any correlation between HVR1 **E2** heterogeneity and **HCV** genotypes, viraemia levels, presence and extent of liver necroinflammation. Our findings suggest that HVR1 **E2** heterogeneity has no direct implications in hepatitis, pathogenesis but it could play a major role in virus persistence.

L1 ANSWER 59 OF 79 MEDLINE
AN 97174230 MEDLINE
DN 97174230 PubMed ID: 9021964
TI A specific **antibody** response to **HCV E2** elicited in mice by intramuscular inoculation of plasmid **DNA** containing coding sequences for **E2**.
AU Tedeschi V; Akatsuka T; Shih J W; Battegay M; Feinstone S M
CS The Laboratory of Hepatitis Viruses, Center for Biologics Evaluation and Research, Food and Drug Administration, Bethesda, MD USA.
SO HEPATOLOGY, (1997 Feb) 25 (2) 459-62.
Journal code: 8302946. ISSN: 0270-9139.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199703
ED Entered STN: 19970313
Last Updated on STN: 19970313
Entered Medline: 19970303
AB As the chimpanzee, the only reliable animal model for hepatitis C virus (**HCV**) infection, is impractical for early stage testing of

HCV vaccine candidates, we have evaluated the immune response in mice to an experimental plasmid based **HCV** vaccine. We used this system because **DNA** vaccines can be rapidly constructed without the necessity of large scale protein production and purification. In this preliminary study we tested the immune response in mice to **HCV** envelope glycoprotein, **E2**, induced by a eukaryotic expression plasmid. Protein expression was monitored by immunofluorescence in transfected tissue culture cells. Each mouse was inoculated intramuscular with 100 microg plasmid **DNA** and some mice were boosted after 5 weeks. Among 12 BALB/C mice inoculated, 10 developed **antibody** to **E2** by the second week. The **antibody** levels increased steadily before reaching a plateau in mice receiving the booster, but in the nonboosted mice the **antibody** declined over time. The serum from one mouse was tested against a series of overlapping peptides covering most of **E2**. This serum contained **antibodies** recognizing two distinct epitopes beginning at amino acid 57 and amino acid 113 but no **antibody** was directed against peptides representing the hypervariable region of **E2**, **antibody** to which is thought to be important in **HCV** neutralization. We have shown that the use of plasmid based vaccines can induce a specific immune response in mice against **HCV** antigens. This system should be useful as the first step in vaccine development.

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---Logging off of STN---

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Executing the logoff script...

=> LOG Y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	18.87	19.08

STN INTERNATIONAL LOGOFF AT 14:46:09 ON 27 SEP 2002